

DoDI 5000.02

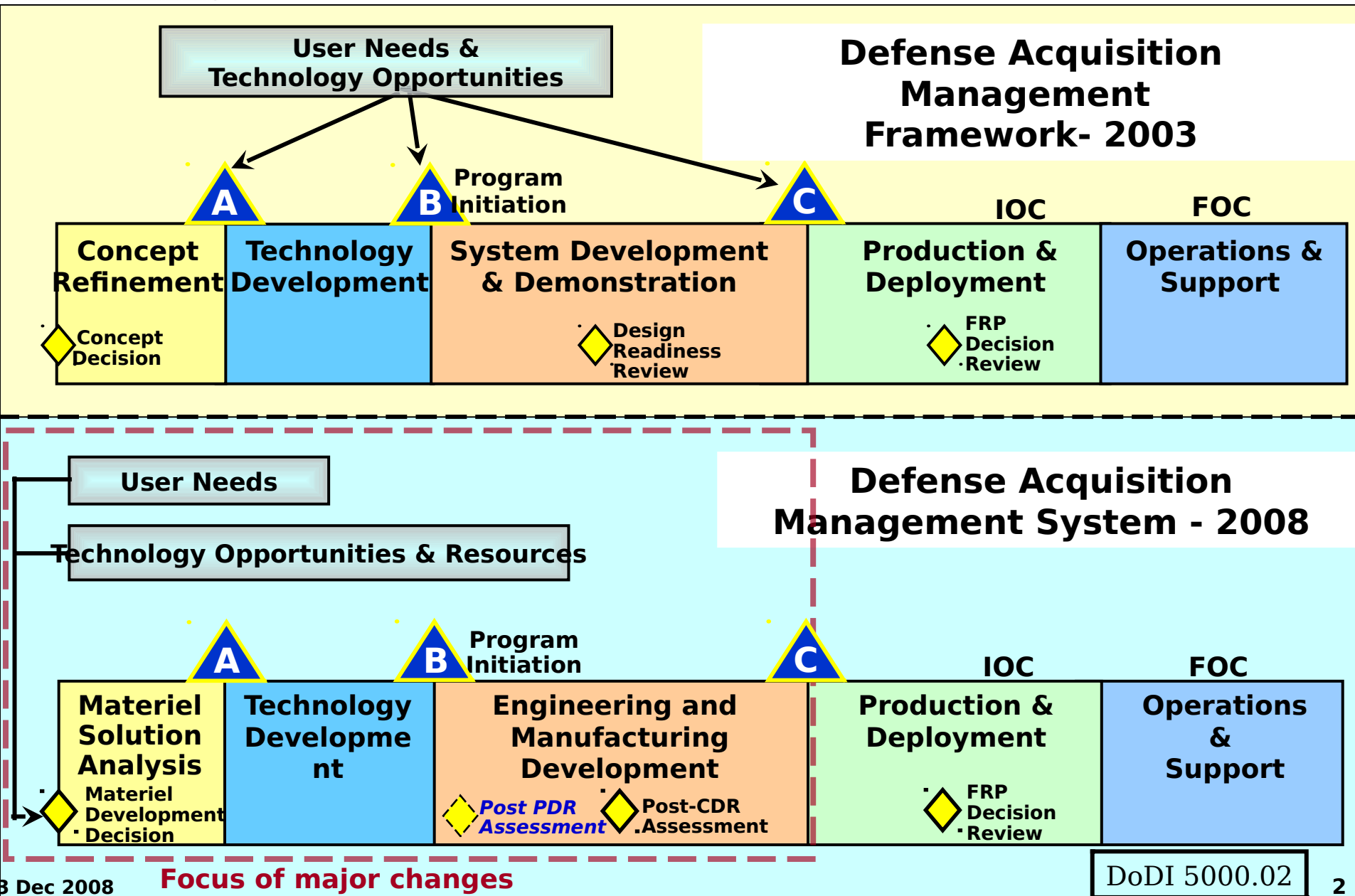
Approved 8 December

2008

Changes from the May 2003 DoDI 5000.2

- **Policy Flowing from Numerous New/Revised sections of Public Law since 2003 (some with Multiple Requirements)**
- **Approved Policy Appearing in over 25 Policy Memos and DoD Responses to the GAO, IG, and Congress**
- **Reference to 10 Updated or Newly Issued DoD Publications**
- **Consideration of Over 700 Defense Acquisition Policy Working Group (DAPWG) Comments**

Comparison of 2003 vs. 2008



Defining Desired Capabilities

User Needs & Technology Opportunities

Source of User

Needs

**Joint Capabilities
Integrated Development
System (JCIDS)**

- Joint Concept of Operations
- Joint integrated architectures
- DOTMLPF analysis

Which lead to:

- Initial Capabilities

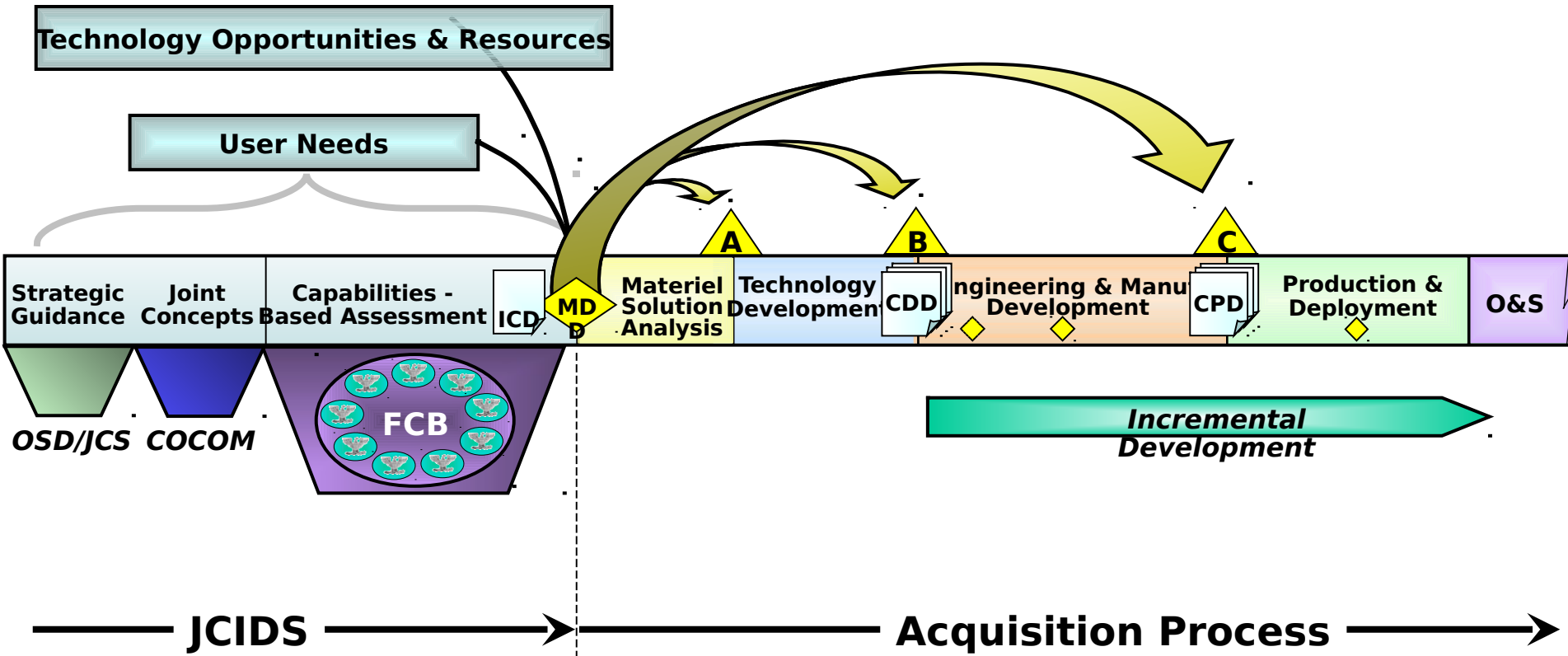
Technology

Opportunities

**Science & Technology
(S&T) activities**

- ATDs
- JCTDs
- Joint Warfighting Experiments

The Defense Acquisition Management System 2008



“Following the Materiel Development Decision (MDD), the MDA may authorize entry into the acquisition management system at any point consistent with phase-specific entrance criteria and statutory requirements.”

Achieving Full Capability

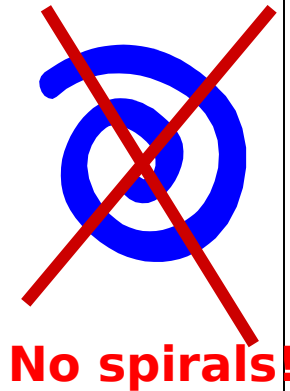
Two strategy approaches to full capability:
evolutionary and ***single-step***.

- Particular approach chosen depends on:
 - Availability of time-phased capabilities in the CDD
 - Technology maturity
 - Cost/benefit of incremental fielding vs. single step
 - Cost of fielding multiple configurations
 - > Retrofit decisions & cost
 - > Training
 - > Supportability
- Acquisition strategy shall address chosen approach
- **Evolutionary acquisition** is the **preferred strategy** for rapid acquisition of mature technology

Evolutionary Acquisition

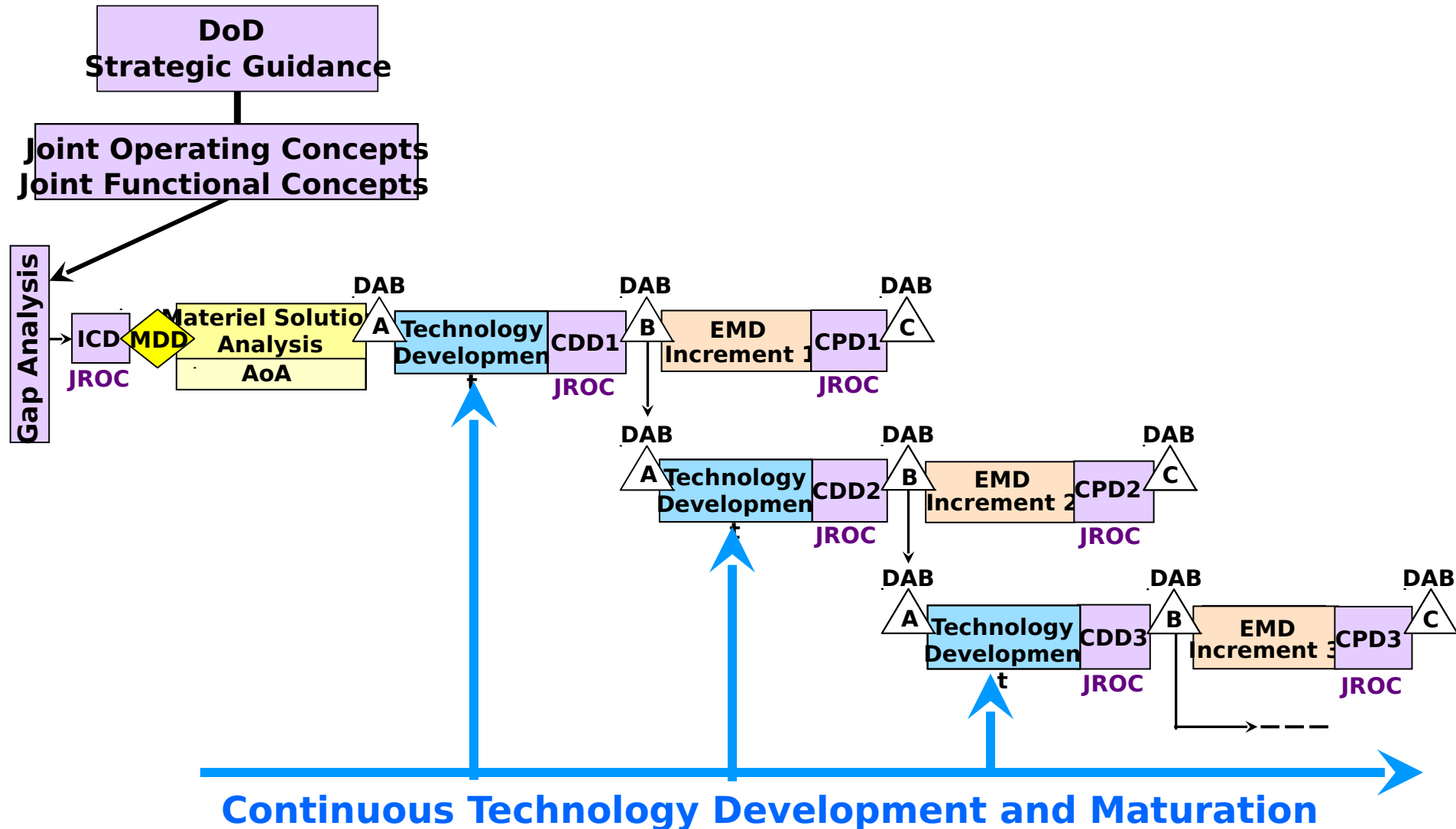
From two processes...—————>To one process...

- Incremental Development: End-state is known; requirements met over time in several increments
- Spiral Development: End-state is not known; requirements for increments dependent upon technology maturation and user feedback.



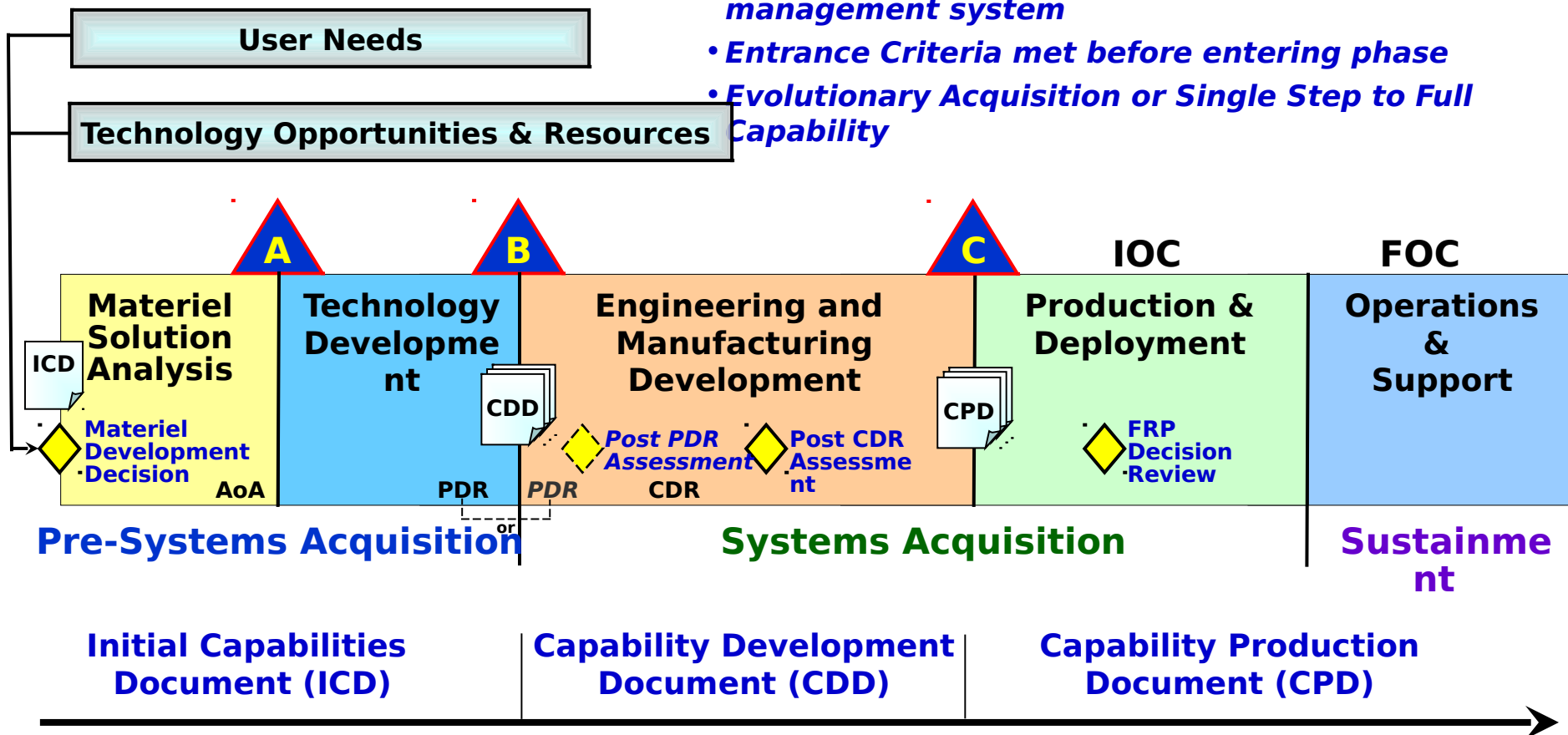
- Capability delivered in increments, recognizing up front need for future capability improvements
- Each increment:
 - depends on mature technology
 - is a militarily useful and supportable operational capability
 - Successive Technology Development Phases may be needed to mature technology for multiple increments

Evolutionary Approach



The Defense Acquisition Management System

- *The Materiel Development Decision precedes entry into any phase of the acquisition management system*
- *Entrance Criteria met before entering phase*
- *Evolutionary Acquisition or Single Step to Full Capability*



Relationship to JCIDS

PDR: Preliminary Design Review
 CDR: Critical Design Review
 FRP: Full Rate Production

IOC: Initial Operational Capability
 FOC: Full Operational Capability

Material Solution Analysis

Purpose:
***Assess
potential
materiel
solutions***



- **Enter:** Approved ICD and study guidance for conducting AoA.
- **Activities:** Conduct AoA, develop Technology Development Strategy (TDS) & ***draft CDD***
- **Guided by:** ICD and AoA Plan
- **Exit:** ***Materiel solution to capability need in ICD recommended by lead component conducting AoA***, and phase-specific exit criteria have been satisfied

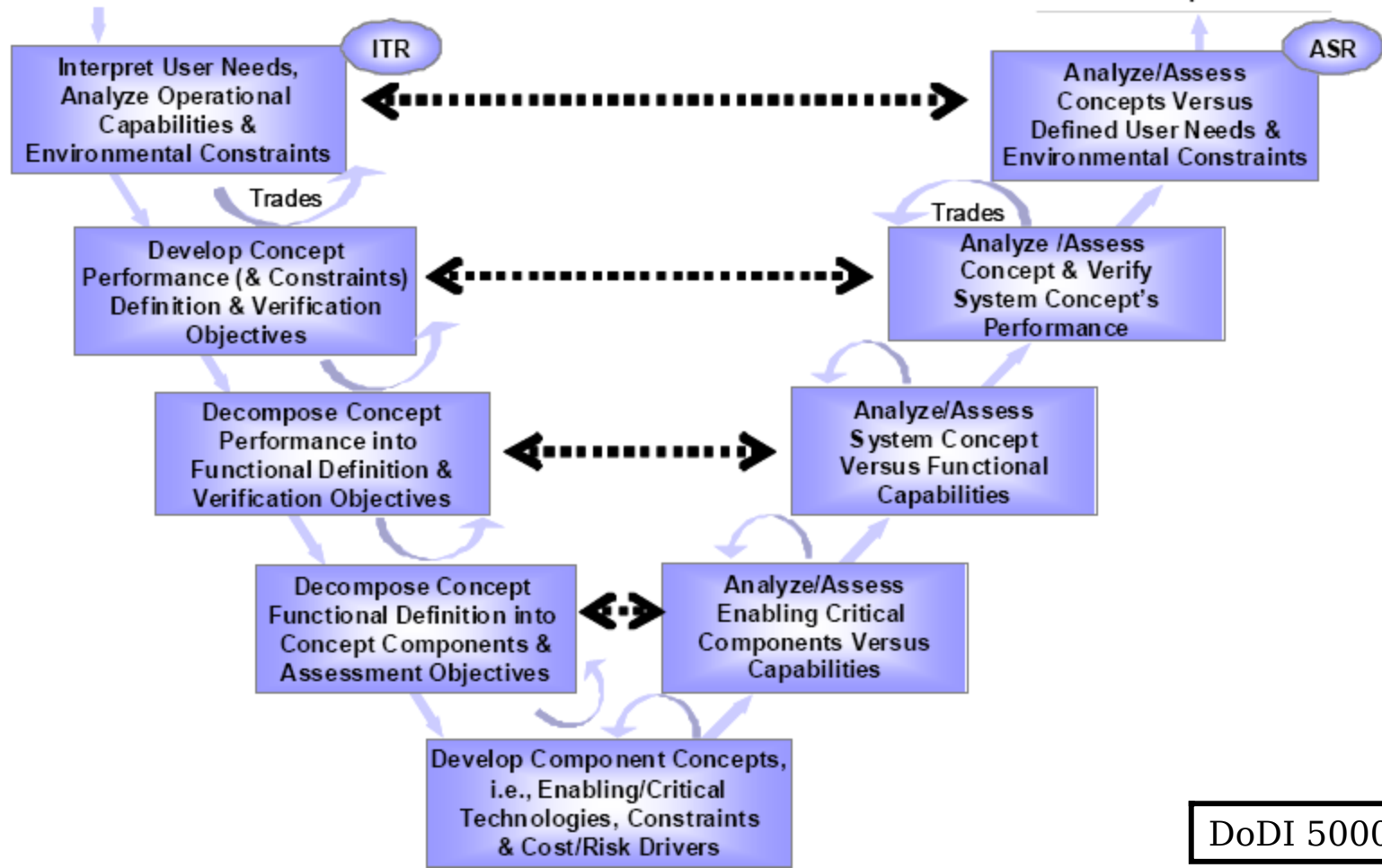
Material Solution Analysis Phase

INPUTS

- ICD
- AoA Plan
- Alternative Maintenance & Sustainment Concepts

OUTPUTS

Draft System Rqts
T&E Strategy
SEP
System Safety Analyses
Support & Maintenance Concepts & Technologies
Inputs to:
Updated ICD • TDS • AoA
Cost Manpower Est.



Technology Development



Purpose: Reduce Technology Risk, ***Demonstrate Critical Technology on Prototypes, Complete Preliminary Design***

Enter: MDA ***approved materiel solution*** and TDS; ***funding for TD phase activities***

Activities: ***Competitive prototyping; develop RAM strategy; conduct Preliminary Design Review (PDR)***

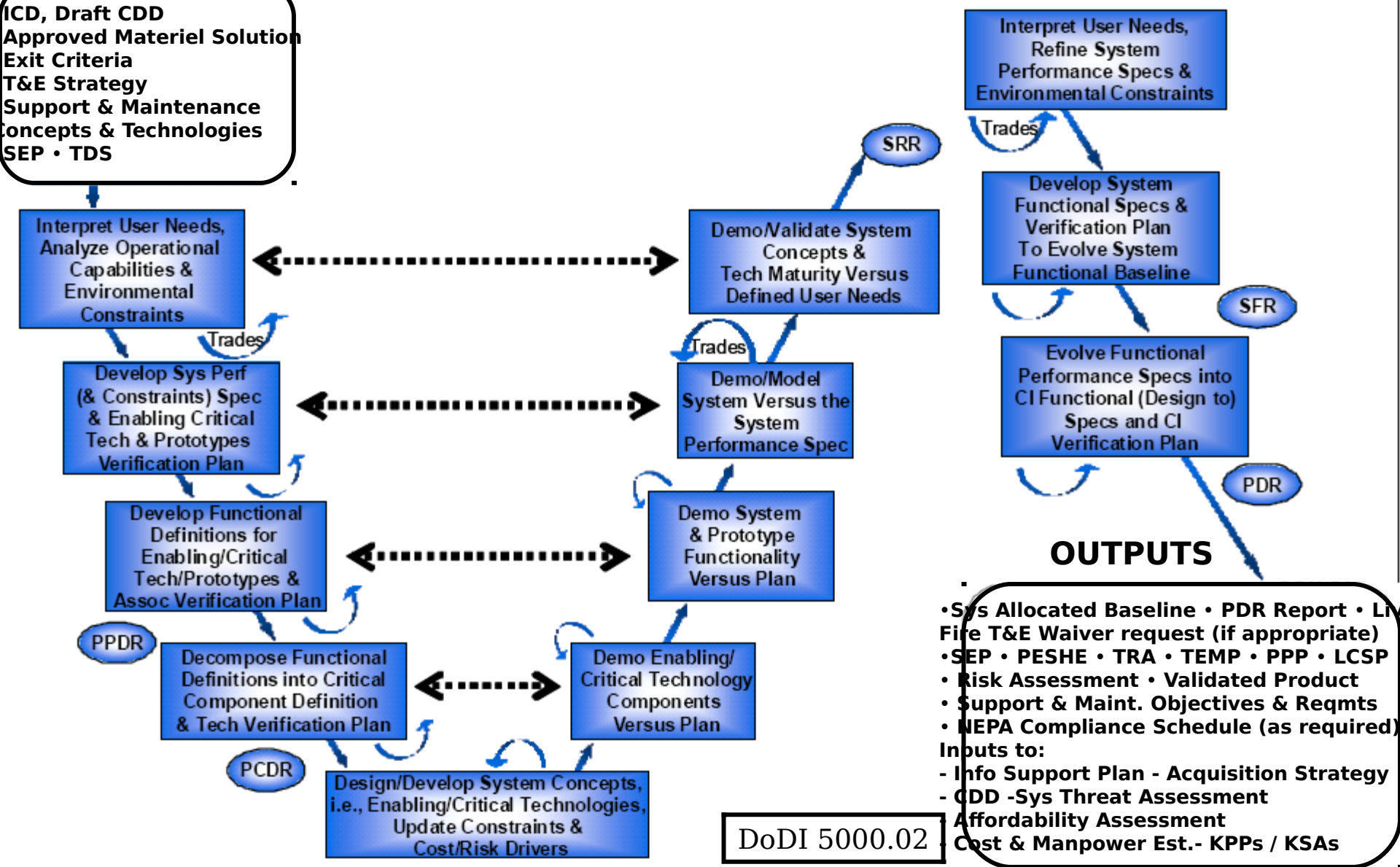
Guided by: ICD & TDS ***and supported by SE planning***

Exit: Affordable increment of military-useful capability identified; technology demonstrated in relevant environment; manufacturing risks identified; ***PDR conducted for candidate solutions***; system or increment ready for production within short time frame (normally less than 5 years ***for weapon systems***)

Technology Development Phase

INPUTS

ICD, Draft CDD
Approved Materiel Solution
Exit Criteria
T&E Strategy
Support & Maintenance
Concepts & Technologies
SEP • TDS



OUTPUTS

- Sys Allocated Baseline • PDR Report • L
 - Fire T&E Waiver request (if appropriate)
 - SEP • PESHE • TRA • TEMP • PPP • LCSP
 - Risk Assessment • Validated Product
 - Support & Maint. Objectives & Reqmts
 - NEPA Compliance Schedule (as required)
- Inputs to:
- Info Support Plan - Acquisition Strategy
 - CDD -Sys Threat Assessment
 - Affordability Assessment
 - Cost & Manpower Est.- KPPs / KSAs

Engineering & Manufacturing Development



• **Enter:** Mature Technology; Approved Requirements; Full Funding in FYDP

• **Activities:** *Define system of system functionality & interfaces*, complete detailed design, *system-level PDR (as needed)/CDR, establish product baseline*,

• **Guided by:** **CDD, Acq Strategy, SEP & TEMP**

• **Exit:** *Complete system-level CDR and Post-CDR Assessments by MDA*

• **Enter:** *Post-CDR Assessment and establishment of initial product baseline*

• **Activities:** Developmental Testing (DT) assesses progress against technical parameters, and Operational Assessments (OA) Against CDD

• **Guided by:** **CDD, Acq Strategy, SEP & TEMP**

• **Exit:** System demonstrated in intended environment using *production-*

representative articles;

manufacturing processes

demonstrated

New terms/requirements in bold blue italics

DoDI 5000.02

Engineering & Manufacturing Development Phase

OUTPUT

- Initial Product Baseline
- Test Reports
- SEP • PESHE • TRA • TEMP
- Risk Assessment
- Product Support Element Reqmts
- Inputs to:
 - CPD - Sys Threat Assessment
 - ISP - Cost & Manpower Est.

FCA

SVR

PRR

Combined DT&E/OT&E/
LFT&E
Demonstrate System to
Specified User Needs
& Environmental
Constraints

Trades

System DT&E, OT&E, OAs
Verify System Functionality
& Constraints Compliance
To Specs

TRR

Integrated DT&E, LFT&E, &
EOAs Verify Performance
Compliance to Specs

Individual CI
Verification
DT&E

CDR

Fabricate, Assemble,
Code to "Build-to"
Documentation

MS
B

INPUTS

- System Performance Specification
- Exit Criteria for the EMDD Phase
- Validation Sys Sup & Maint. Objectives & Reqts
- Acquisition Program Baseline
- CDD • SEP • TEMP • Information Support Plan
- Programmatic Environment, Safety, & Occupational Health Evaluation
- Product Support Strategy
- PPP, System Threat Assessment
- Cost & Manpower Est.

Evolve CI Functional
Specs into Product
(Build to)
Documentation
And Inspection Plan

DoDI 5000.02

Interpret User Needs,
Refine System
Performance Specs &
Environmental Constraints

Trades

Develop System
Functional Specs &
Verification Plan
To Evolve System
Functional Baseline

SFR

Evolve Functional
Performance Specs into
CI Functional (Design to)
Specs and CI
Verification Plan

PDR

TD OUTPUTS

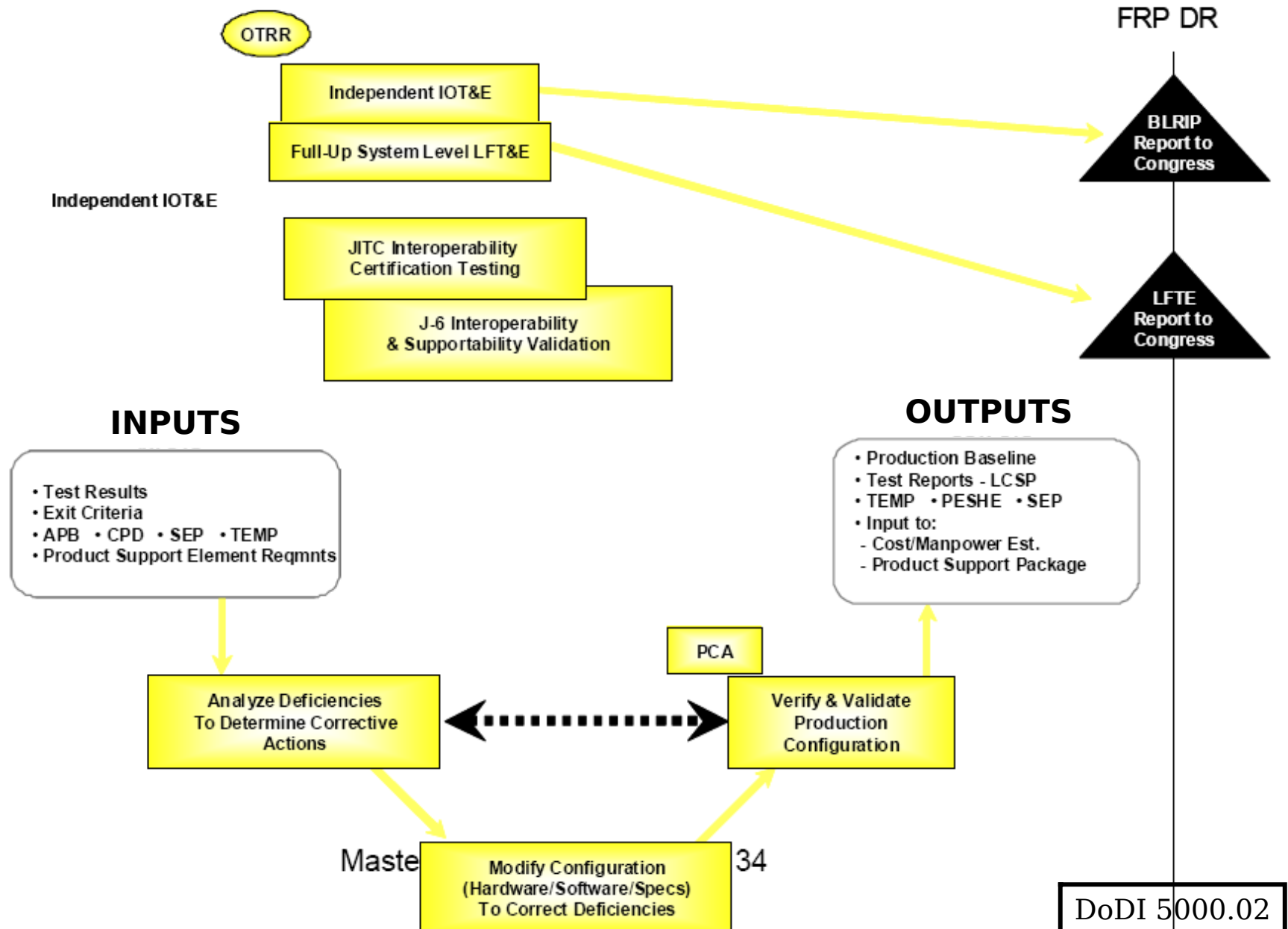


Purpose: Achieve an operational Capability that satisfies mission needs



- **Enter:** Acceptable performance in DT & OA; mature software; no significant manufacturing risks; approved CPD; ***refined integrated architecture***; acceptable interoperability and operational supportability; demonstration of affordability; fully funded; phased for rapid deployment.
- **Activities:** IOT&E, LFT&E (If Required) and interoperability testing of production-representative articles; ***IOC possible***
- **Guided by:** CPD, TEMP, SEP
- **Exit:** System operationally effective, suitable and ready for full-rate production
- **Enter:** Beyond LRIP & LFT&E reports (OSD T&E/LFT&E programs) submitted to congress
- **Activities:** Full-rate production; fielding and support of fielded systems; IOC/FOC
- **Guided by:** Acq strategy & life cycle sustainment plan
- **Exit:** Full operational capability; deployment complete

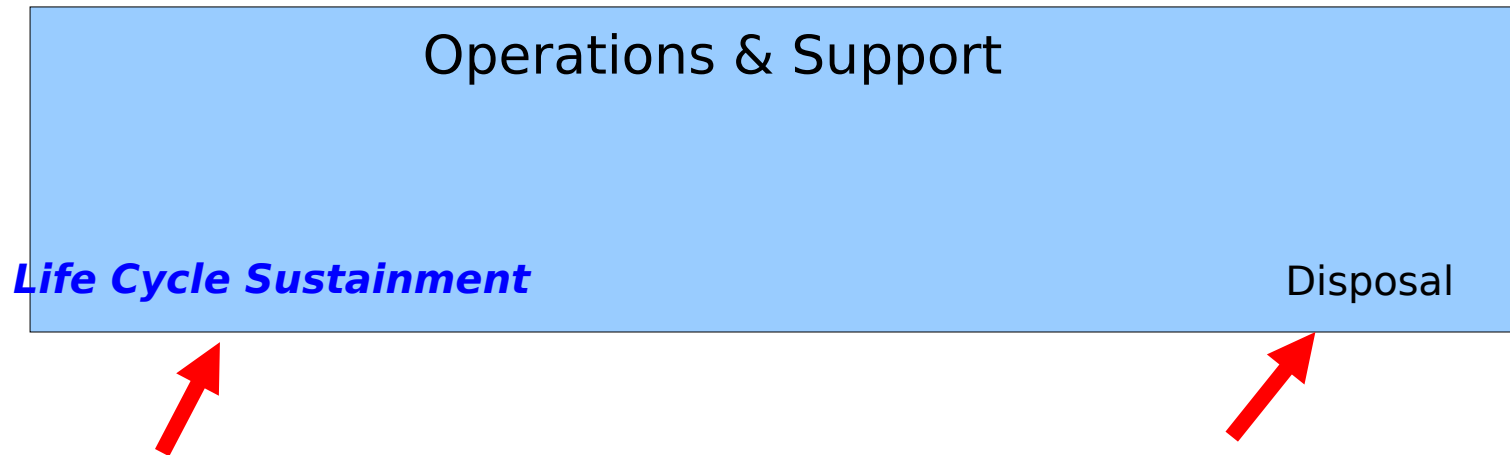
Production and Deployment Phase



Operations & Support

Purpose: Execute a support program that meets materiel readiness and operational support performance requirements, and sustains the system in the most cost-effective manner over its total life cycle.

FOC



- **Entrance:** Approved CPD; ***approved LCSP; successful FRP Decision***
- **Activities:** ***Performance-Based Life-Cycle Product Support (PBL)*** planning, development, implementation, and management; initiate system modifications as necessary; continuing reviews of sustainment strategies
- **Guided by:** Acquisition Strategy/LCSP

- **Activities:** Demilitarize and dispose of systems IAW legal and regulatory requirements, particularly environmental considerations and explosives safety
- **Guided by:** Programmatic Environment, Safety, and Occupational Health Evaluation (PESHE)

New terms/requirements in ***bold blue italics***

Operations and Support Phase

INPUTS

- Service Use Data
- User Feedback
- Failure Reports
- Discrepancy Reports
- SEP

Monitor and Collect All Service Use & Supply Chain Performance Data

Trades

Analyze Data to:
 - Validate Failures, - Determine the Root Cause,
 - Determine Opportunities to Reduce LCC/ Improve Materiel Avail,
 - Project Future Issues

Determine System Risk/
 Hazard Severity

DoDI 5000.02

Develop Corrective Action

Integrate & Test Corrective Action

Assess Risk of Improved System

Analyze

Implement and Field

ISR

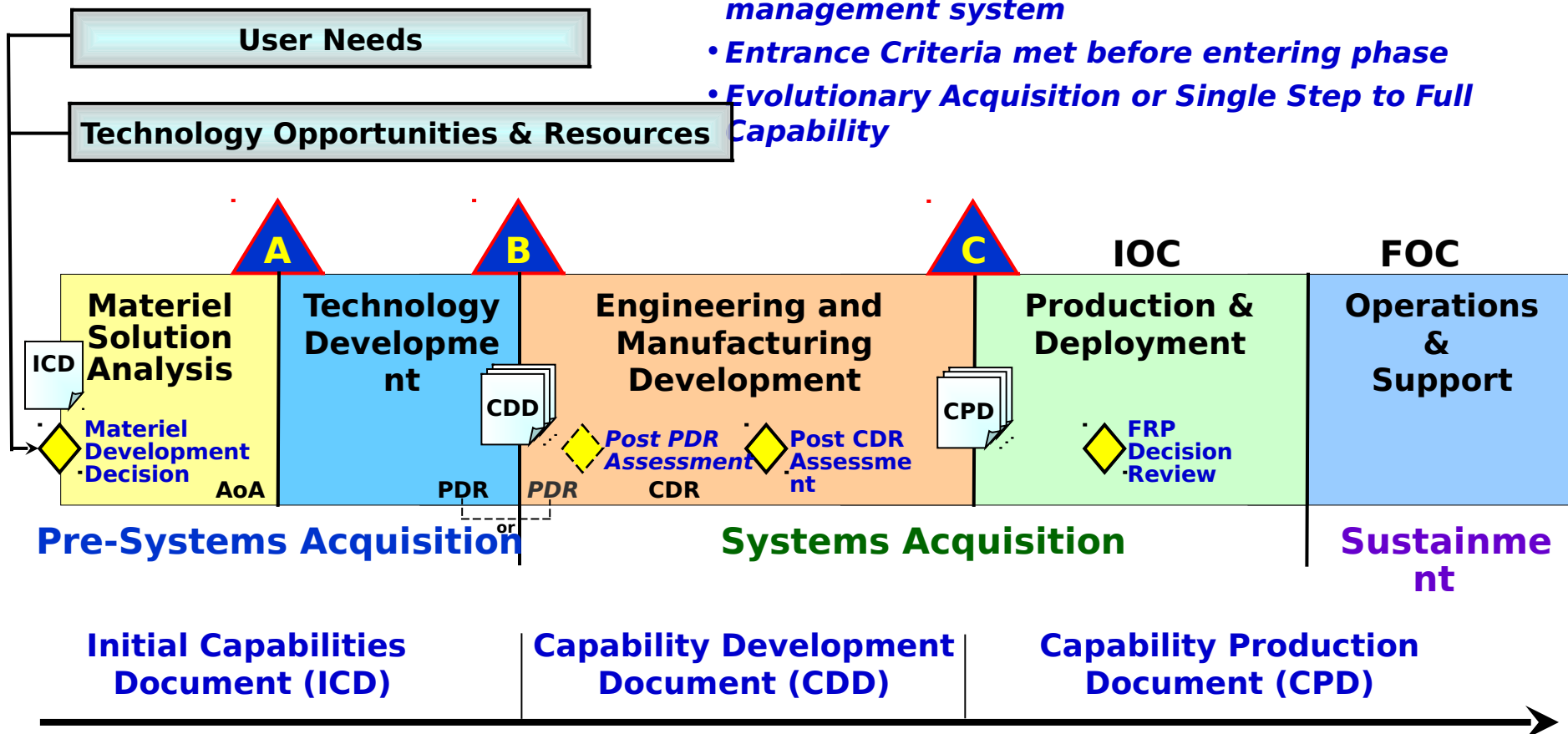
OUTPUTS

- Input to CDD for next increment
- Modifications/upgrades to fielded systems, PSP & Process
- SEP & LCSP

- Process Change
- Operational/ Maintenance/ Support Materiel Change
- Hardware/Product Support Package

The Defense Acquisition Management System

- *The Materiel Development Decision precedes entry into any phase of the acquisition management system*
- *Entrance Criteria met before entering phase*
- *Evolutionary Acquisition or Single Step to Full Capability*



PDR: Preliminary Design Review
 CDR: Critical Design Review
 FRP: Full Rate Production

IOC: Initial Operational Capability
 FOC: Full Operational Capability

DoDI 5000.02 & Space Acquisition Policy

- **NSS 03-01 referenced specifically in the DoDI 5000.02, dated 8 Dec 08, as follows:**
 - **Enclosure 1, References: National Security Space Acquisition Policy 03-01, "Guidance for DoD Space System Acquisition Process"**
 - **Table 7, Unique Decision Forums: referencing the DSAB**
- **Mr. Young (USD/AT&L) rescinded NSS 03-01 effective 23 Mar 08**
 - **Interim guidance is copy of NSS 03-01 with DSAB changed to DAB and Key Decision Point changed to Milestone**
 - **120 days to come up with Annex/Enclosure to DoDI**

Space Programs With USD/AT&L As MDA Operate Under Interim Guidance

“Back to Basics” and Implementing Block Approach

e document



UNDER SECRETARY OF THE AIR FORCE
WASHINGTON, DC



March 14, 2007

MEMORANDUM FOR SECRETARIES OF THE MILITARY DEPARTMENTS
CHAIRMAN OF THE JOINT CHIEFS OF STAFF
UNDER SECRETARY OF DEFENSE (ACQUISITION,
TECHNOLOGY AND LOGISTICS)
UNDER SECRETARY OF DEFENSE (INTELLIGENCE)
ASSISTANT SECRETARY OF DEFENSE (NETWORKS AND
INFORMATION INTEGRATION)
DIRECTOR, OPERATIONAL TEST AND EVALUATION
DIRECTOR, PROGRAM ANALYSIS AND EVALUATION

SUBJECT: “Back to Basics” and Implementing a Block Approach for Space Acquisition

National Security Space (NSS) systems have a long history of outstanding performance and these systems are crucial to protecting our national interests. A “mission success” approach to the timely and cost-effective fielding of NSS capabilities is essential to supporting the warfighter and ensuring our national security. In order to improve our focus and ensure we can deliver what we promise—when promised, I am advocating a “Back to Basics” philosophy. The foundation of this disciplined acquisition approach is an experienced, high quality, technically educated, government workforce actively engaged in all aspects of the enterprise.

The “Basics” we need to focus on include: clear and achievable Requirements; disciplined Systems Engineering; effective Management; and appropriate Resources. To that end, we need to continue to work, in both the planning and execution phases, to stabilize and align requirements and resources, reinforce systems engineering principles, and improve our management processes, to include risk assessments and mitigation.

A Block Approach is the cornerstone to improving our space acquisition processes. This approach is based on an incremental delivery strategy—more rapidly providing initial capability—based on proven technologies—while concurrently investing in science and technology (S&T) and technology development to support later blocks. In this way, risk is strategically apportioned across blocks based on technical maturity and fiscal constraints.

The specific number and timing of blocks, the definitions of Initial and Full Operational Capability (IOC and FOC), and the level of capability delivered in each block will vary by program. These details must be coordinated with the user and presented to the Milestone Decision Authority (MDA) for approval via each program’s acquisition strategy. An Acquisition Program Baseline must be developed and approved for each block.

Elements for specific blocks include:

Capability. A program’s acquisition strategy will describe incremental delivery plans. Incremental capabilities will be outlined along with a roadmap describing progression to FOC. Capabilities should be assessed in terms of deliverables required by the warfighter. The capabilities to be delivered in each block will be based on user agreement, technology maturity, program risk, fiscal constraints and need date.

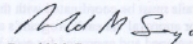
Delivery. A Block Approach places a strong emphasis on delivering an initial capability faster. Delivery timelines should be based on a Time Certain Development principle that establishes a specific time frame in which a specific block of capability will be fielded, starting at Key Decision Point – B (KDP-B). Every effort will be made to stabilize requirements and budget for individual blocks to support delivery timelines. Some new requirements and advanced technologies may be deferred to future blocks to support delivery timelines. Mission success, warfighter needs, and the timely addition of value-added capability for each block will drive these decisions.

Technology Development. The acquisition strategy should identify critical technologies and present a technology development roadmap that aligns with the proposed block delivery plan. A four-staged technology development construct (Science and Technology, Technology Development, Systems Development, and System Production) should be employed with renewed emphasis on the transition between Technology Development and Systems Development to ensure mature technologies (Technology Readiness Level 6) are available by KDP-B to support the fielding of incremental value-added capabilities. The 2006 National Defense Authorization Act now requires the Milestone Decision Authority (MDA) to certify at KDP-B that program technologies have been “demonstrated in a relevant environment.”

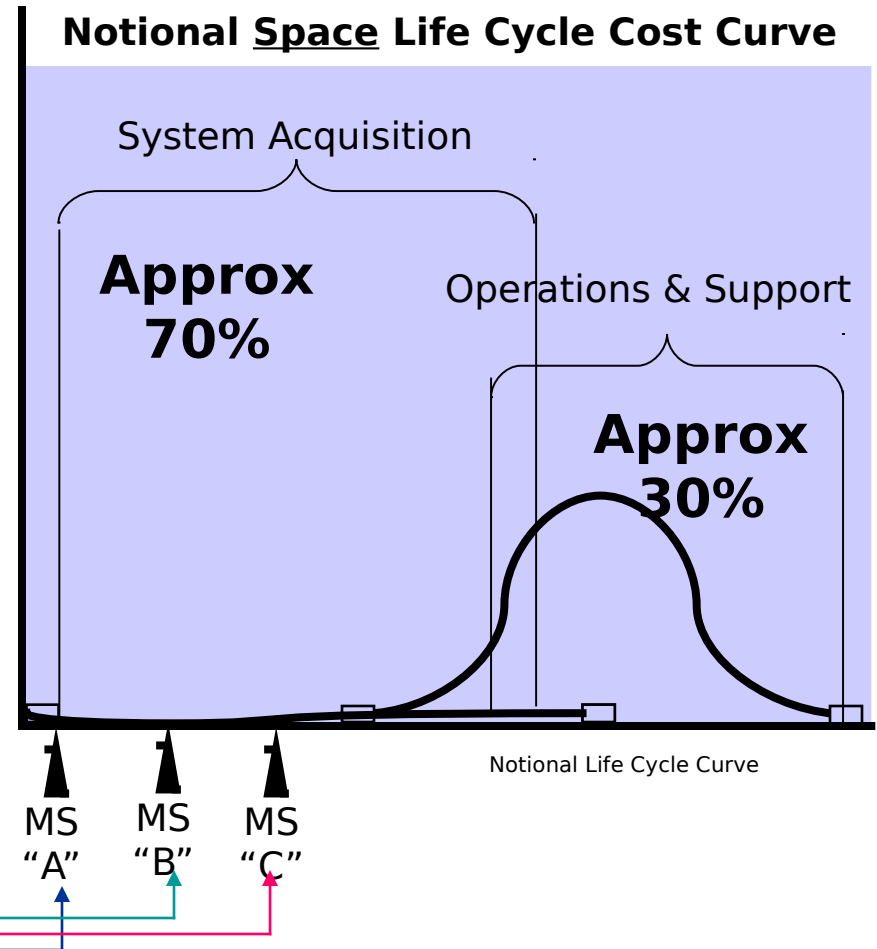
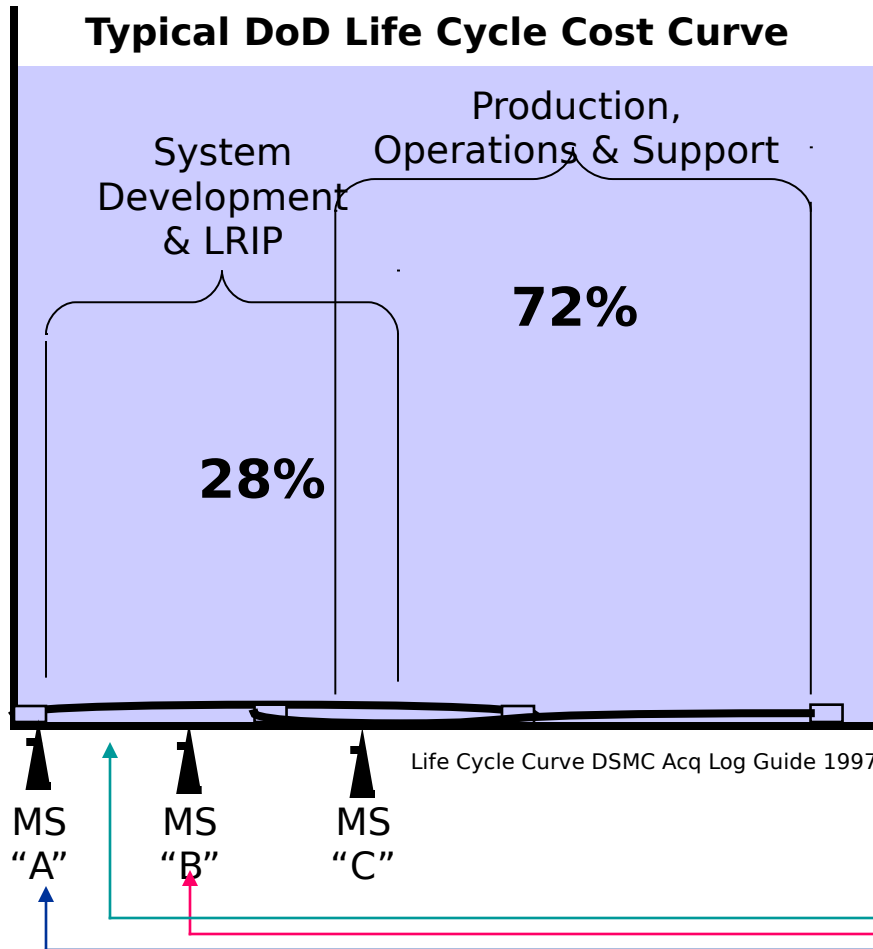
Risk. Program risks must be identified early and updated often. An assessment of overall risk, an apportionment plan distributing risk across blocks, and increased attention on risk management and mitigation plans are key components of an acquisition strategy.

Budget. A reliable budget starts with a reliable cost estimate. Program estimates should be based on an 80% confidence level by KDP-B. We will work to align program blocks with fiscal realities with this 80% objective in mind.

Effective immediately, all space program acquisition strategies will baseline a Block Approach unless the program shows this strategy is inappropriate. Additionally, Independent Program Assessments will evaluate not only the program being executed, but also the end-to-end capability being delivered. This approach will make the delivery of space system capabilities to the battlefield more predictable. We must refocus our efforts to deploy systems that respond to warfighter requirements in a responsible, timely, and cost-effective manner.

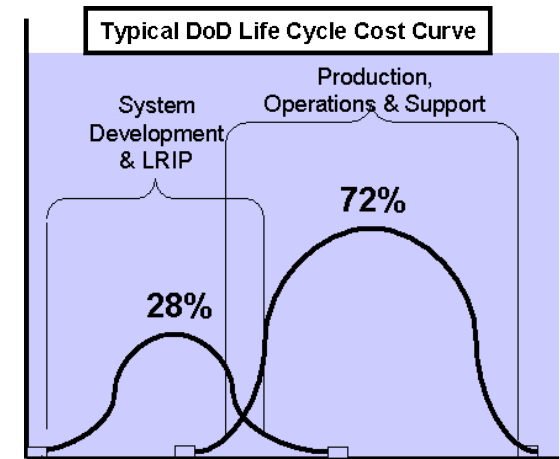
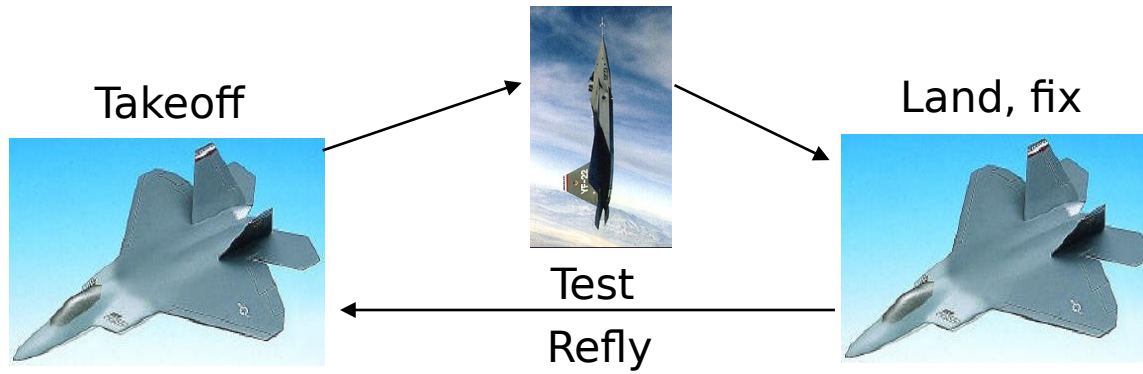

Ronald M. Segal
DoD Executive Agent for Space

Tailored Process for Space: Life Cycle Comparison

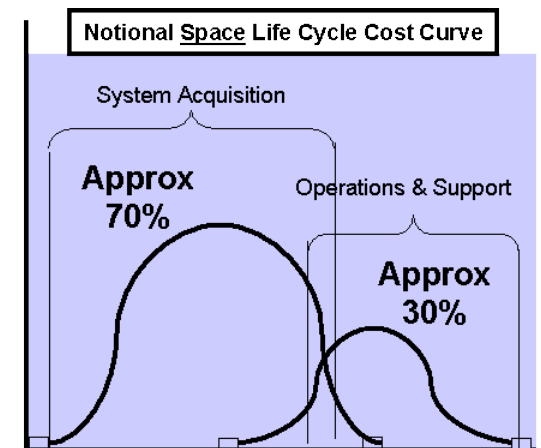
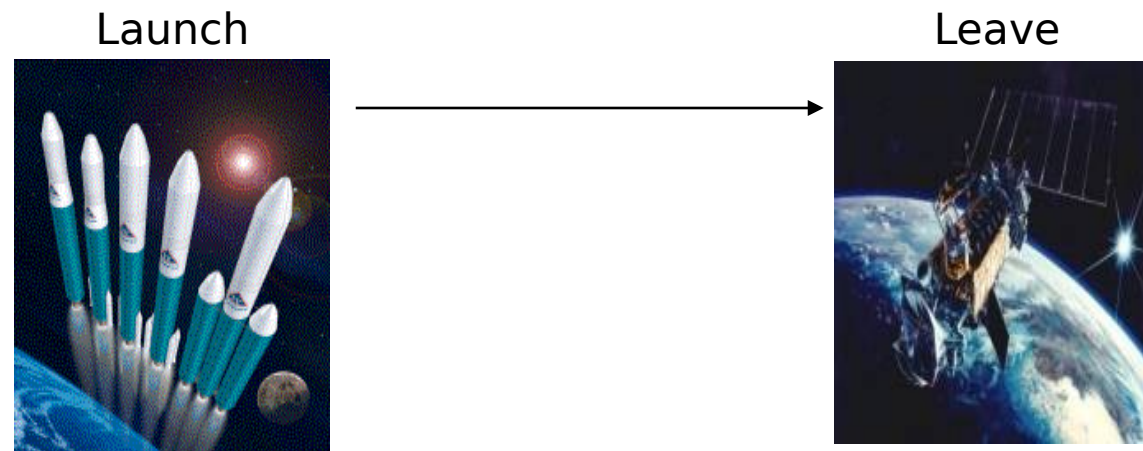


Space is Different

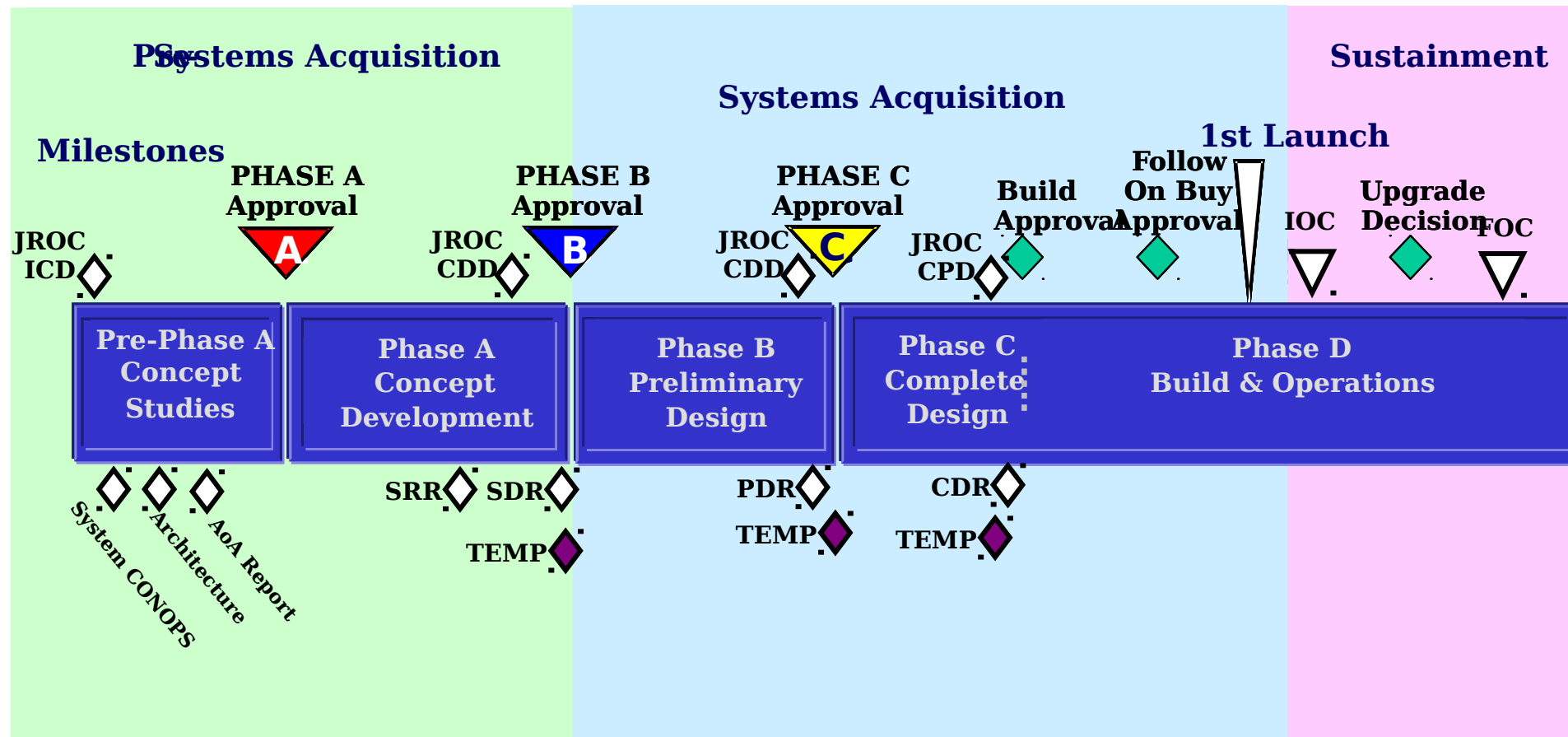
Aircraft test, land, fix and reflly



Launch/leave for 10-15 yrs – perfect first time, every time

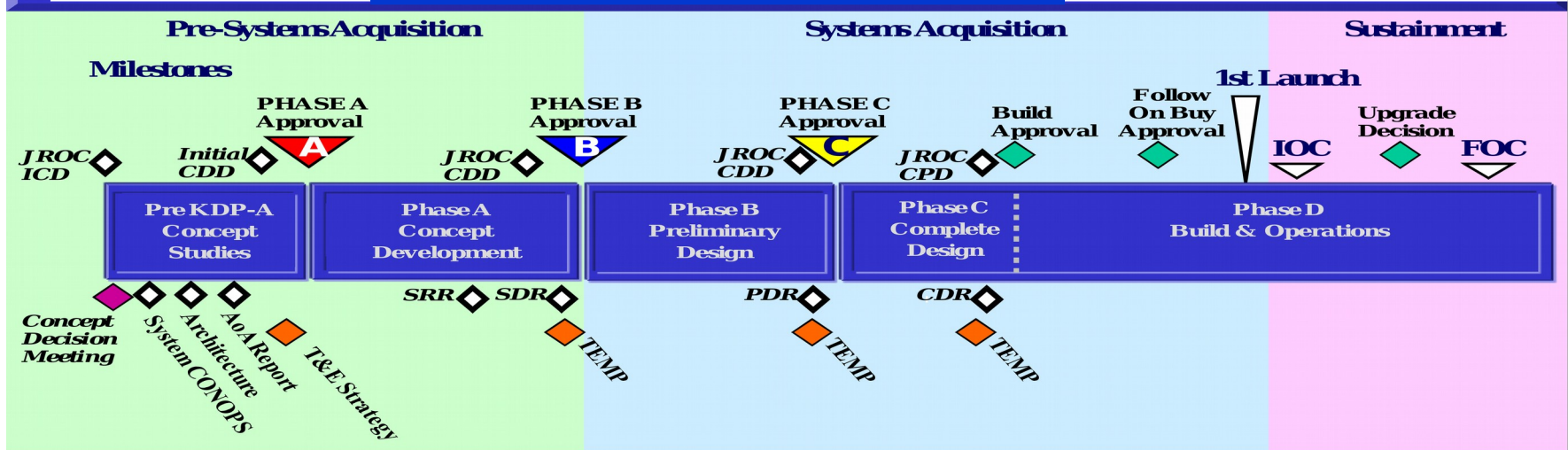


Space Acquisition Life Cycle

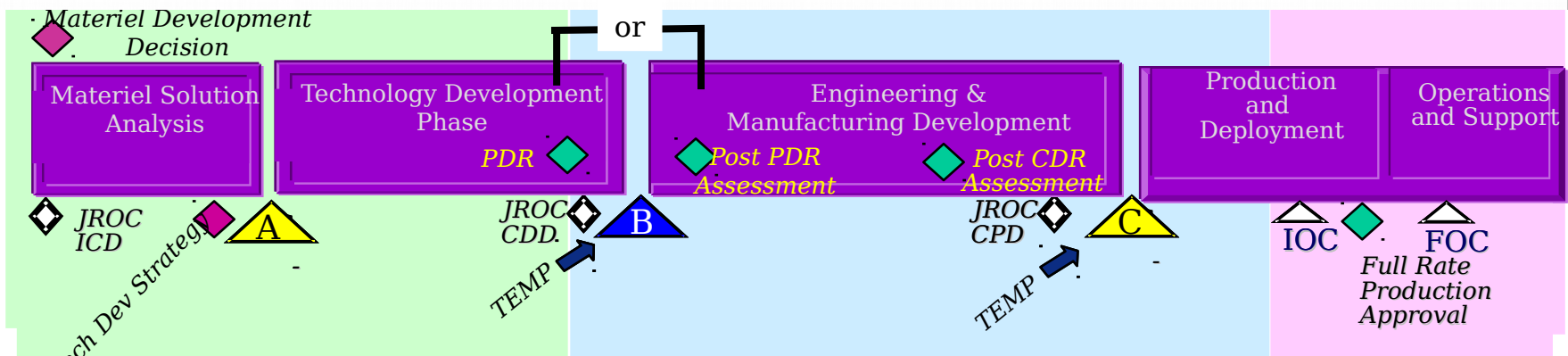


Comparison of Space and DoD 5000 Life Cycle

Space Policy



DoDI 5000.02 (8 December 2008)



Similarities Between DoD 5000 & Space Policy

- **Key Documentation: ICD, CDD, CPD, AS, ADM, APB, TEMP**
- **Requirements Process: JCIDS**
- **Reporting: DAES, SARs, and UCRs**
- **DoD Directive 5000.1 is guiding acquisition policy document**
- **Dollar thresholds for acquisition categories established by statute**
 - **Space - Major Defense Acquisition Program**
 - **Non-space - Acquisition Categories I-III**

Key Reasons for Tailoring DOD Acquisition Policy for Space Systems



“Fly Offs”

Low Rate Initial
Production

Hardware mods
after launch

Increased Risk

Key Differences Between DoD 5000 & Space Policy

- **New Acquisition Model tailored for space systems:**
 - More emphasis on earlier phases of program development
- **Program Review Process:**
 - Defense Acquisition Board (DAB) with single Independent Program Assessment “Peer Review” vs. DAB with OIPT and multiple IIPs & WIPTs
- **Space Policy alters timing of Milestone Reviews**

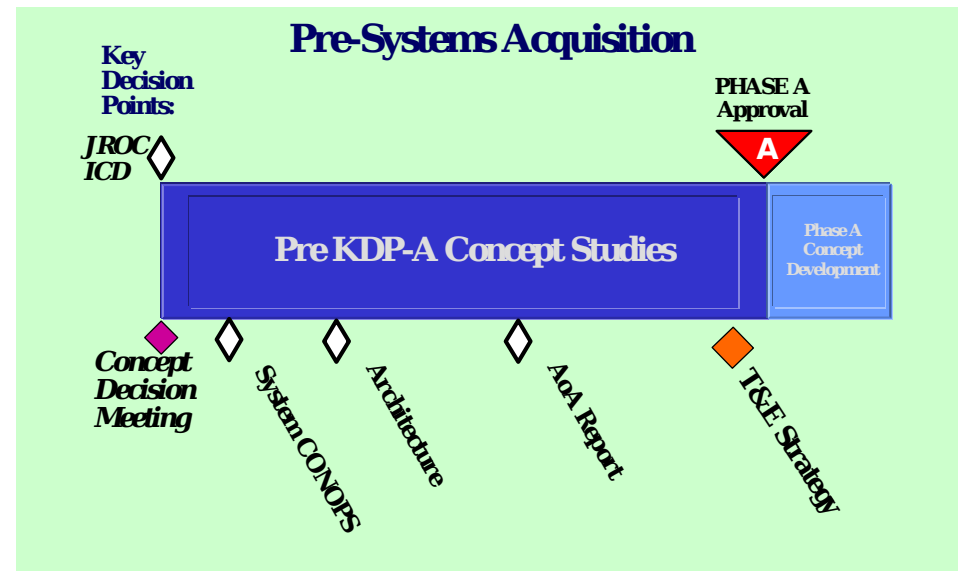
Pre-Systems Acquisition

Concept Studies

Enter: Approved ICD and AoA plan

Activity: Conduct AoA based on studies of alternative solutions to the initial concept; Develop Acquisition Strategy

Exit: MDA selects preferred solution to be pursued



Pre-Phase A **Concept Studies**

- **Activities in this phase conducted by Joint Chiefs of Staff and User Major Command (MAJCOM)**
 - There is no System Program Office (SPO) yet
 - Concept planning to define a new operational capability
 - Requirements developed through the Joint Capabilities Integration & Development System (JCIDS) process
- **Key Documentation:**
 - Initial Capabilities Document (ICD)
 - System level Concept of Operations (CONOPS)
 - Architecture
 - Analysis of Alternatives (AoA) Report
 - Test & Evaluation (T&E) Strategy

Phase A

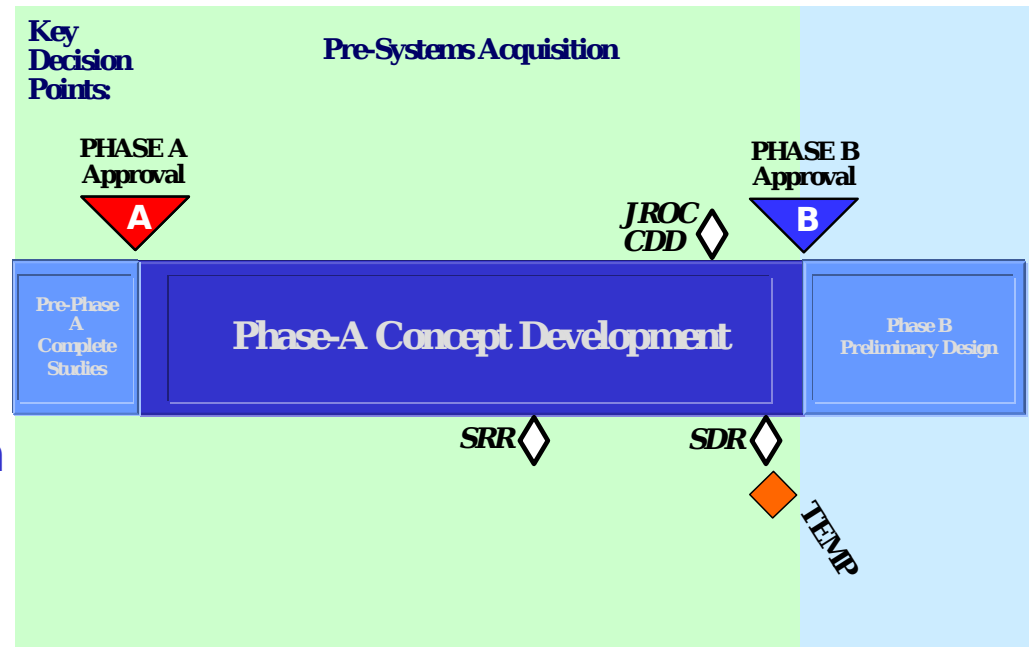
Concept Development

Enter: PM has possible technical solution but has not matured technology; approved ICD

Activities:

Mature Technology
Reduction of integration risk
System Spec and Functional Baseline

Exit: Independent Program Assessment validates strategy



Phase A

Concept Development

- **Develop a mature concept and architecture for system baseline. Activities include:**
 - **Concept & system architecture development**
 - **Technology development and maturity assessment**
 - **Trade studies**
 - **Vulnerability assessment**
 - **Risk reduction**
 - **Requirements and functional baseline development**
 - **Industrial capability assessments for key technologies**
- **Key Documentation:**
 - **Capability Development Document (CDD)**
 - **Test and Evaluation Management Plan (TEMP)**

Phase A

Concept Development, Con't

- **Key Reviews:**

- **System Readiness Review (SRR)**

- Ensures system requirements are identified and complete

- **System Design Review (SDR)**

- Defines system performance, functional characteristics, and component interfaces

- **IPA and MS-B Approval**

Goal: Solid program baseline for Phase B

Phase B

Preliminary System Design

Enter: PM has specific technical solution ready for design and integration

Activities:

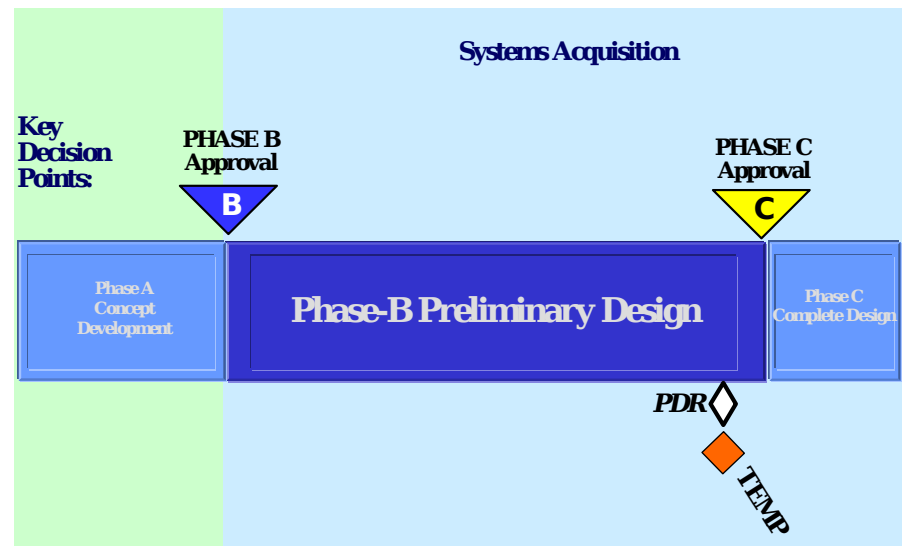
Mature Technology to

TRL 6

Reduction of integration risk

PDR

Exit: Independent Program Assessment validates Design Readiness



Phase B **Preliminary Design**

- **Formal program initiation**
- **Conduct risk reduction**
- **Complete technology development**
 - **Technology should be demonstrated in the relevant environments**
- **Increase confidence in alternative(s)**
 - **Assess estimated risk levels**
 - **Assess projected performance**
- **Key Documentation:**
 - **TEMP**

Phase B

Preliminary Design

- **Key Reviews:**
 - **Preliminary Design Review (PDR)**
 - Evaluates selected design approach and risk resolution
 - **IPA and MS-C Approval**

Goal: Complete design - Phase C

Phase C

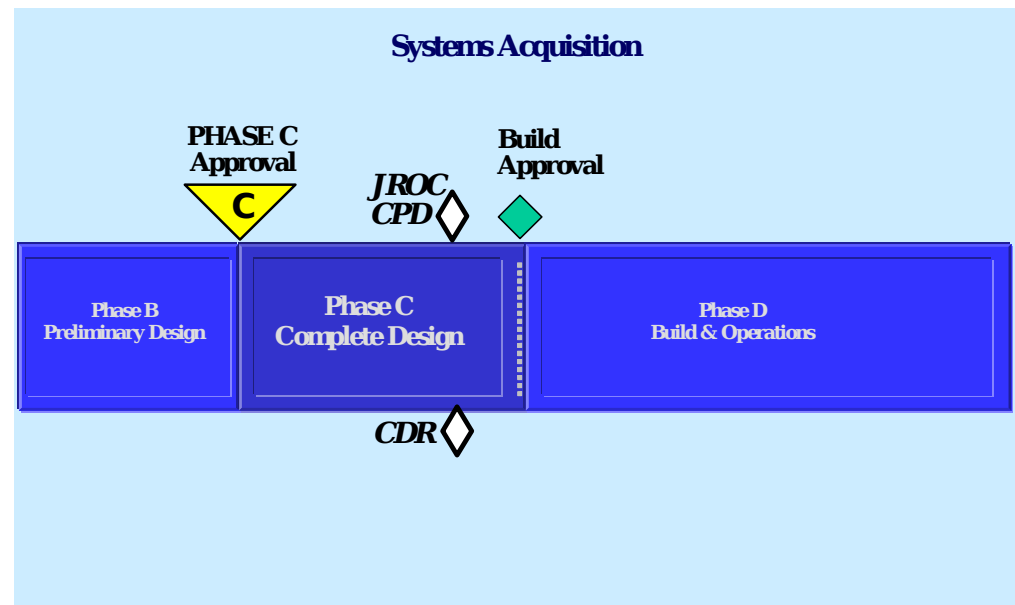
Complete Design

Enter: PM has specific design solution ready for detailed development and CDD

Activities:

Mature Technology
Reduction of integration risk
CDR

Exit: Independent Program Assessment validates Design



Phase C

Complete Design

- **Complete design activities. Extra design emphasis allows us to:**
 - Increase confidence in alternatives identified in Phase B
 - Mitigate risks
- **Key Documents**
 - **Capability Production Document (CPD)**
 - Required to proceed to Build Approval

Phase C

Complete Design

- **Key Reviews**
 - **Critical Design Review (CDR)**
 - Evaluates detailed design
 - **Build Approval**
 - Authorizes fabrication, testing, deploying and supporting operations for new system
 - Marks end of design development

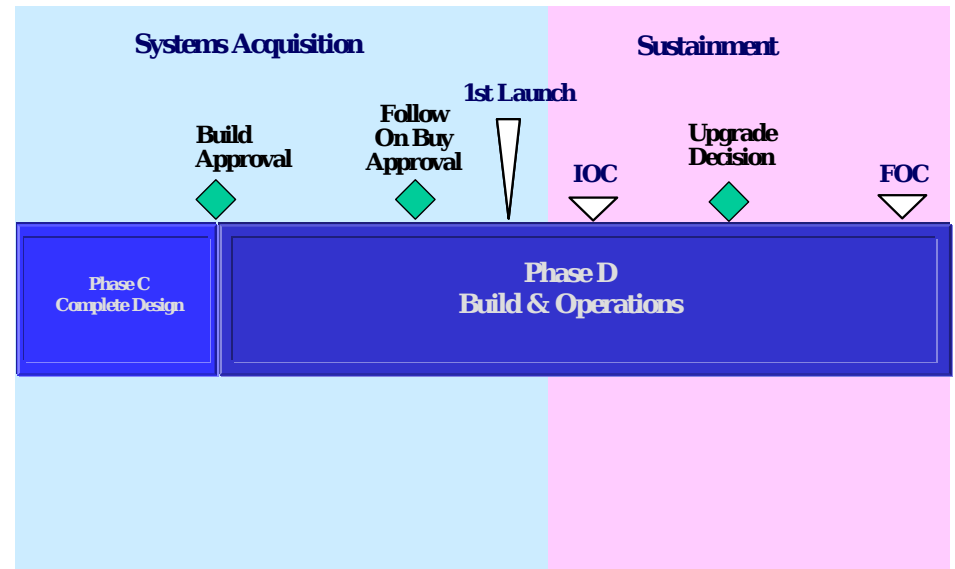
Goal: Ready to Build & Deploy

Phase D Build and Operations

Enter: PM has detailed design ready for construction and CPD

Activities:

- Spacecraft Construction
- 1st Launch
- IOC
- IOT&E



Phase D

Build and Operations

- **Contractor builds system to design**
 - Fabrication, integration, testing, and deployment
- **Conduct studies to:**
 - Assess reliability, maintainability, and availability
 - Resolve hardware or software problems
 - Maintain performance over the system's planned life
- **Conduct testing of system**
 - Developmental Test and Evaluation
 - Operational Test and Evaluation
- **Launch or deploy system**
- **Sustainment**
 - Provide operations support
 - Dispose at the end of useful life

Phase D

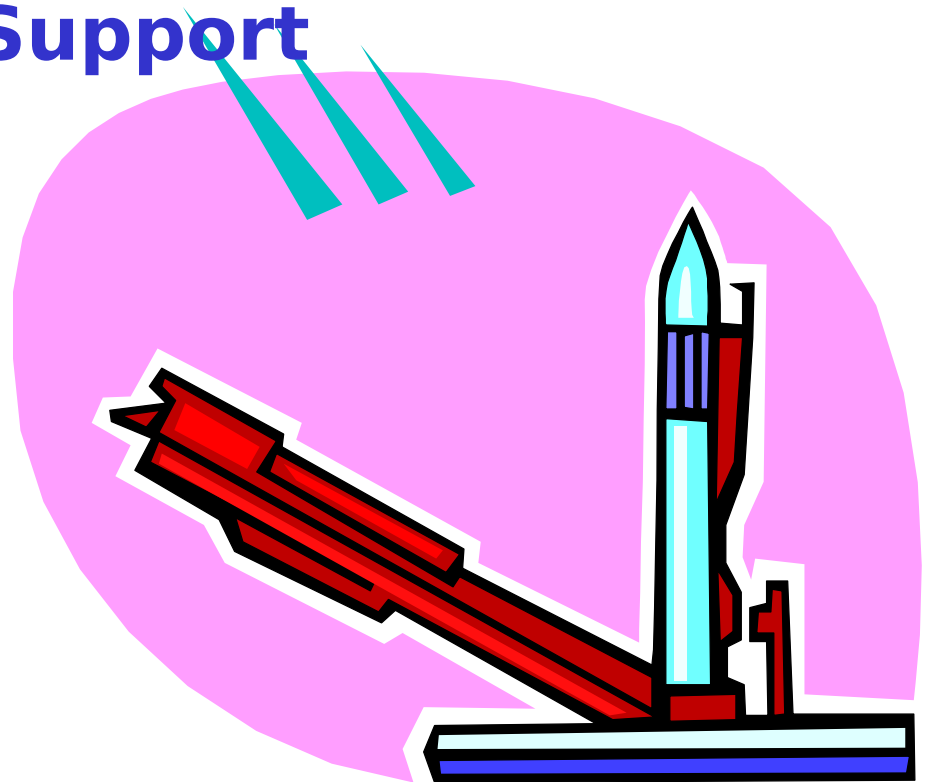
Build and Operations

- **Key reviews:**
 - **Follow On Buy Approval**
 - Authorizes additional procurements of system
 - **Upgrade Decision**
 - Authorizes improvements to system
- **Key events:**
 - **1st Launch**
 - **Initial Operational Capability declaration**

Goal: Operational/Sustainable/Affordable System

Launch

- **Work with the range you'll be using**
 - **Vehicle, Schedule, Design, Cost, Safety, Support**



Operational Capability

- **Initial Operational Capability (IOC)**
 - **An event defined by the User's MAJCOM**
 - **Represents fielding of the first operationally effective production unit(s)**
- **Fully Operational Capability (FOC)**
 - **All production units fielded**
 - **Systems are supportable and capable of performing their mission**